From: Burch, Kelly

Sent: Tuesday, February 10, 2009 2:22 PM

To: Carmon, Mark; Sexton, Barbara (DEP); Sherman, Michael D; Bedrin, Michael; Candori, Teresa; Lobins, Craig

Subject: RE: A conversation with Cabot O & G

k...and maybe that's the issue. It's all Devonian out there, but the distinction needs to be made that the stray gas is coming from pper Devonian units that are located stratigraphically above the Marcellus Shale. I believe they are just trying to protect the rand name of Marcellus.

---Original Message----

rom: Carmon, Mark

ent: Tuesday, February 10, 2009 11:55 AM

o: Burch, Kelly; Sexton, Barbara (DEP); Sherman, Michael D; Bedrin, Michael; Candori, Teresa; Lobins, Craig

ubject: Re: A conversation with Cabot O & G

We have already verbally noted the gas is from the Devonian formation and it has appeared in the Binghamton media and other papers. We can mention it in future releases.

Sent from my BlackBerry Wireless Handheld

From: Burch, Kelly

To: Sexton, Barbara (DEP); Sherman, Michael D; Bedrín, Michael; Candori, Teresa; Carmon, Mark; Lobins, Craig

Sent: Tue Feb 10 11:51:31 2009

Subject: A conversation with Cabot O & G

Craig Lobins and I had a recent conversation with Tom Liberatore, VP & General Manager of Cabot Oil & Gas Corp. (Ken Komoroski was not on the call). We were discussing the situation in Dimeck Twp., Susquehanna County, and the steps they were taking to identify and eliminate the gas migration problem affecting the area.

At the end of the discussion, Tom asked that the DEP join Cabot in collecting another complete round of Isotech samples from the water wells, production gas, and gas produced within the annular space between the 4 1/2" and the 7" casing. He indicated Cabot would agree to cover the department's cost for the analysis.

I interrupted him to ask the purpose of the sampling which appeared to be duplicative of our original efforts. Tom indicated that the Department's press releases could lead one to believe that the gas migration problem was coming from the Marcellus Formation. At the very least, the Marcellus Fm. was not being ruled out as the potential source. Cabot's isotopic analysis indicated the gas was coming from Upper Devonian units above the Marcellus Shale and he wanted to conduct another round of sampling and analysis to demonstrate that point.

I informed Tom that the Department concurred with those findings and that there was no need for further sampling. He thanked us and asked if that point could be further clarified in future press releases or discussions with the media. (His concern, and that of the entire industry, is that the stray gas problems occurring in Dimeck Twp. are not attributable to the Marcellus Fm. and that these types of problems are atypical in the industry.) (If you like, I could get you the number of active stray gas investigations we are currently conducting.)

I spoke with Fred Baldassare yesterday to confirm his findings (see below). Although it's impossible to state with 100% certainty, Fred is extremely confident in his analysis which indicates "the stray gas in the water wells is consistent with the gas produced from the formations above the Marcellus."

I offer this up as a summary of our discussion with Cabot and the concerns Tom raised, as well as some food for thought going forward.

Kelvin A. Burch | Regional Director

1/10/2009

Department of Environmental Protection 230 Chestnut Street, Meadville, PA 16335-3481 Phone: 814.332.6816 | Fax: 814.332.6125

www.depweb.state.pa.us

-----Original Message----From: Burch, Kelly

Sent: Monday, February 09, 2009 2:01 PM

To: Baldassare, Alfred

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

Fred:

I left a v-mail for you. Seeking confirmation on the sentence highlighted below in 'red'. No Marcellus gas is found in the private water wells...no mixing is occurring between the Upper Devonian gas and the Marcellus production gas, and ... the migrating gas is from the Upper Devonian units above the Marcellus.

Thanks, Kelly

----Original Message-----From: Baldassare, Alfred

Sent: Wednesday, February 04, 2009 9:10 AM To: Burch, Kelly; Lobins, Craig; Bowman, Kenneth

Cc: Sherman, Michael D; Schwartz, Ronald; Bialosky, Donald; Carmon, Mark; Bedrin, Michael; Sexton, Barbara (DEP);

Ansell, Mark

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

I have reviewed the additional isotope data for this investigation. The purpose of this data was to determine if we could refine our interpretation, and define some level of mixing between gases generated from the units above the Marcellus, and the Marcellus.

The data reveals an isotope reversal for the ethane (del 13C1 > del 13C2) in all samples. Isotope reversals are unusual for gases generated from source rocks in western Pennsylvania, however, given what we know about the thermal history and maturity of the source rocks, it is expected from gases generated from Upper and Middle Devonian source rocks in this area. The stable nitrogen isotope data are consistent with the limited data available for older source rocks in this area. Ultimately, the additional isotope data do not reveal any evidence of mixing between gases generated from the Marcellus and the units above the Marcellus. The new geochemical data supports, and does not reveal any changes to the previous interpretation. The molecular and isotope geochemistry indicates the stray gas in the water wells is consistent with the gas produced from the formations above the Marcellus. The stray gas is not from microbial gas that occurs in some shallow aquifer systems.

Fred Baldassare, P.G.
Geologist
Department of Environmental Protection
Director's Office
Emergency Response
400 Waterfront Drive
Pittsburgh, PA 15222
412-442-4145 (o)
412-225-0943 (m)

From: Baldassare, Alfred

Sent: Thursday, January 29, 2009 6:54 AM

2/10/2009

DIM0043197 DIM0043200

Page 3 of 4

Aessage .

To: Lurch, Kelly; Bowman, Kenneth

Cc: Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark; Bedrin, Michael; Sexton, Barbara (DEP)

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

Based on the existing geochemical data set, we can conclude that the origin of the stray gases detected in the Florentino and Sautner water wells (nine samples analyzed thus far: two = stray gas, seven = potential sources) is thermogenic in origin, consistent with natural gas from Devonian production. The gas found in these water wells is not consistent with microbial gas that occurs in some shallow aquifer systems.

Results for the stable carbon & hydrogen isotope analyses reveal the gases from the gas wells can be further categorized as: 1) natural gas from formations of middle/upper Devonian origin. 2) Marcellus gas. The stray gas in the water wells is consistent with the gas from the formations above the Marcellus. Other lines of evidence will be necessary to identify which specific gas well(s) have contaminated the groundwater system. Additionally, we have requested the lab to also analyze for the stable nitrogen isotopes and the stable carbon isotopes for C2. These analyses will be available late today or early tomorrow and should help to further refine this interpretation. The data will not change the interpretation, but may reveal mixing between Upper Devonian production and Marcellus gas.

It should be noted that the source rock geochemistry (thermal alteration index, vitrinite reflectance, etc.) for this area reveal high paleo-temperature regimes throughout the section. Therefore, geochemical modeling predicts thermally mature gases throughout the Devonian system (what the data for this investigation reveals). This is significant in that, unlike natural gas reservoirs in western PA, we can expect to see only small differences in the isotope compositions of gases from different

Fred Baldassare, P.G. Geologist Department of Environmental Protection Director's Office Emergency Response 400 Waterfront Drive Pittsburgh, PA 15222 412-442-4145 (o) 412-225-0943 (m)

From: Burch, Kelly

Sent: Wednesday, January 28, 2009 4:53 PM To: Bowman, Kenneth; Baldassare, Alfred

Cc: Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark; Bedrin, Michael; Sexton,

Barbara (DEP)

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

The NERO is preparing remarks for the press regarding the status of the investigation and the steps being taken to stabilize the situation. We have referenced the Isotech samples in past news releases and the question has come up regarding the results of the analysis. Will they be available tomorrow if the question is raised? If they are, they will need to put in the proper context in terms of being one part of a multi-faceted investigation.

----Original Message----From: Bowman, Kenneth

Sent: Monday, January 26, 2009 3:58 PM

To: Baldassare, Alfred

Cc: Sherman, Michael D; Burch, Kelly; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald

1/10/2009

Subject:

RE: Stray gas incident - Dimock Twp., Susquehanna County

Thanks for the update.

----Original Message-----From: Baldassare, Alfred

Sent: Monday, January 26, 2009 3:55 PM

To: Bialosky, Donald

Cc. Bowman, Kenneth; Schwartz, Ronald

Subject:

Stray gas incident - Dimock Twp., Susquehanna County

Don,

Just to make you aware of a request of me by Craig Lobins, O&G mgr. in NWRO to review the results for isotopic analyses, and provide additional recommendations for a stray gas incident that has impacted several water supplies in Dimock Twp., Susquehanna County. The incident has been reported on in the DEP daily news clips.

Fred Baldassare, P.G.| Geologist
Department of Environmental Protection
Southwest Regional Office - Field Operations
400 Waterfront Drive| Pittsburgh, PA 1222

Phone: 412.442.4145 | Fax: 412.442.5222 www.depweb.state.pa.ushttp://www.depweb.state.pa.us/

From:

Baldassare, Alfred

Sent:

Thursday, January 29, 2009 6:55 AM

To:

Burch, Kelly, Bowman, Kenneth

Cc:

Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark;

Bedrin, Michael; Sexton, Barbara (DEP)

Subject:

RE: Stray gas incident - Dimock Twp., Susquehanna County

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400 Waterfront Drive
Pittsburgh, PA 15222
412-442-4145 (o)
412-225-0943 (m)

From: Burch, Kelly

Sent: Wednesday, January 28, 2009 4:53 PM To: Bowman, Kenneth; Baldassare, Alfred

Cc: Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark;

Bedrin, Michael; Sexton, Barbara (DEP)

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

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----Original Message----

From: Bowman, Kenneth

Sent: Monday, January 26, 2009 3:58 PM

To: Baldassare, Alfred

Cc: Sherman, Michael D; Burch, Kelly; Schwartz, Ronald; Lobins, Craig; Bialosky,

Donald Subject:

RE: Stray gas incident - Dimock Twp., Susquehanna County

Thanks for the update.

----Original Message----

From: Baldassare, Alfred

Sent: Monday, January 26, 2009 3:55 PM

To: Bialosky, Donald

Cc: Bowman, Kenneth; Schwartz, Ronald

Subject:

Stray gas incident - Dimock Twp., Susquehanna County

Don,

Just to make you aware of a request of me by Craig Lobins, O&G mgr. in NWRO to review the results for isotopic analyses, and provide additional recommendations for a stray gas incident that has impacted several water supplies in Dimock Twp., Susquehanna County. The incident has been reported on in the DEP daily news clips.

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Phone: 412.442.4145 | Fax: 412.442.5222 www.depweb.state.pa.us
http://www.depweb.state.pa.us/>

From:

Baldassare, Alfred

Sent:

Wednesday, February 04, 2009 9:10 AM

To:

Burch, Kelly, Lobins, Craig; Bowman, Kenneth

Cc:

Sherman, Michael D; Schwartz, Ronald; Bialosky, Donald; Carmon, Mark; Bedrin, Michael;

Sexton, Barbara (DEP); Ansell, Mark

Subject:

RE: Stray gas incident - Dimock Twp., Susquehanna County

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The data reveals an isotope reversal for the ethane (del 13C1 > del 13C2) in all samples. Isotope reversals are unusual for gases generated from source rocks in western Pennsylvania, however, given what we know about the thermal history and maturity of the source rocks, it is expected from gases generated from Upper and Middle Devonian source rocks in this area. The stable nitrogen isotope data are consistent with the limited data available for older source rocks in this area. Ultimately, the additional isotope data do not reveal any evidence of mixing between gases generated from the Marcellus and the units above the Marcellus. The new geochemical data supports, and does not reveal any changes to the previous interpretation. The molecular and isotope geochemistry indicates the stray gas in the water wells is consistent with the gas produced from the formations above the Marcellus. The stray gas is not from microbial gas that occurs in some shallow aquifer systems.

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Geologist
Department of Environmental Protection
Director's Office
Emergency Response
400 Waterfront Drive
Pittsburgh, PA 15222
412-442-4145 (0)
412-225-0943 (m)

From: Baldassare, Alfred

Sent: Thursday, January 29, 2009 6:54 AM

To: Burch, Kelly; Bowman, Kenneth

Cc: Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark;

Bedrin, Michael; Sexton, Barbara (DEP)

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

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Devonian system (what the data for this investigation reveals). This is significant in that, unlike natural gas reservoirs in western PA, we can expect to see only small differences in the isotope compositions of gases from different systems.

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From: Burch, Kelly

Sent: Wednesday, January 28, 2009 4:53 PM To: Bowman, Kenneth; Baldassare, Alfred

Cc: Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark;

Bedrin, Michael; Sexton, Barbara (DEP)

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

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----Original Message----

From: Bowman, Kenneth

Sent: Monday, January 26, 2009 3:58 PM

To: Baldassare, Alfred

Cc: Sherman, Michael D; Burch, Kelly; Schwartz, Ronald; Lobins, Craig; Bialosky,

Donald

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

Thanks for the update.

----Original Message-----From: Baldassare, Alfred

Sent: Monday, January 26, 2009 3:55 PM

To: Bialosky, Donald

Cc: Bowman, Kenneth; Schwartz, Ronald

Subject: Stray gas incident - Dimock Twp., Susquehanna County

Don,

Just to make you aware of a request of me by Craig Lobins, O&G mgr. in NWRO to review the results for isotopic analyses, and provide additional recommendations for a stray gas incident that has impacted several water supplies in Dimock Twp., Susquehanna County. The incident has been reported on in the DEP daily news clips.

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http://www.depweb.state.pa.us/

Ex. 6 - Personal Privacy

Ansell, Mark

From:

Welsh, Douglas

Sent:

Wednesday, January 07, 2009 4:13 PM

To:

Lobins, Craig; Kucsma, Paul; Oprendek, Anthony; Ansell, Mark

Subject:

Dimok Susquehanna County



Gesford 3.JPG (663 KB)

Water Well 75% in well bore. Sample taken

Baker sample taken from meter and well. 680 psi on annulus of 4 1/2. 690 psi on 4 1/2. 7

basements were checked on carter road. No gas was found. Ex. 6-Personal Privacy

Ex. 6-Personal Privacy

Others in his note s. Everyone wants there water sampled. Herb received a well record for the Ex. 6-Personal Privacy

1-6-09 Ely 5H @ 4472 drilling kick off plug. 2015' of 7", gas show at 1776', gas check @ 1808 14" through 1 1/4" plate. Ely 1H in production. Hubbard 1 producing, annulus shut. Gesford 2 producing, annulus shut.



From:

Oprendek, Anthony

Sent:

Thursday, January 08, 2009 9:37 AM

To:

Lobins, Craig; Ansell, Mark; Kucsma, Paul; Welsh, Douglas; O'Donnell, Michael; Karlinsey,

Herbert: Gleeson, Robert

Subject:

EX. 6 - Personal Privacy lethane Results

Craig asked me to contact Dave Clemens for sample results. He reported that shows \$\frac{\text{to Ext. Personal Privacy}}{\text{showed}}\$ showed 4 mg/l (with 20% bias). He did not have ethane, but is emailing that number. Mike also sampled \$\text{showed Privacy}\$nothing detected.

From:

Oprendek, Anthony

Sent:

Thursday, January 08, 2009 10:18 AM

To:

Lobins, Craig; Kucsma, Paul; Gleeson, Robert; Ansell, Mark; Welsh, Douglas; O'Donnell,

Michael; Karlinsey, Herbert

Subject:

FW: Request for Results

FYI....

----Original Message----

From:

Clemens, David

Sent:

Thursday, January 08, 2009 9:47 AM

To: Subject: Oprendek, Anthony RE: Request for Results

Tony

Sample 4530-099 has 4010 ppb Methane, 86 ppb Ethane

As I said the quantitative value reported is qualified due to drift in the calibration. This means the quantitive uncertainly may be as high as 30% as appose to the nominal 15%.

David Clemens

----Original Message----

From:

Oprendek, Anthony

Sent:

Thursday, January 08, 2009 9:33 AM

To: Subject: Clemens, David

Request for Results

Dave, per our phone con...can you please relay the ethane results for 4530-099? Thanks for your help. Tony

From:

Oprendek, Anthony

Sent:

Friday, January 16, 2009 10:22 AM

To:

Clemens, David

Cc:

Gleeson, Robert; Lobins, Craig; Kucsma, Paul; O'Donnell, Michael; Welsh, Douglas;

Karlinsey, Herbert

Subject:

RE: Request for Results

residence, on the north side of Thanks for your help Dave. Much appreciated. The he refers to is the Saunter. I'll call later to see if we have more.

----Original Message-----

From:

Clemens, David

Sent:

Friday, January 16, 2009 9:47 AM

To:

Oprendek, Anthony

Cc:

Minnick, Mark

Subject:

RE: Request for Results

Anthony

I have some Methane results for the Dimock township case.

Sample 4530-107 Collected 1/12/09 at the Residence Methane 7990 ppb, 86 ppb Ethane Sample 4530-100 Collected 1/12/09 at the Residence Methane 17600 ppb, 920 ppb Ethane Sample 4530-110 Collected 1/13/09 at the Residence Methane 17900 ppb,1020 ppb Ethane

The others have a minimal amount of methane.

We presently have one that came in today from the residence? We hope to do that today, you can call Mark Minnick at the end of the day if you are interested in the results.

Dave Clemens

----Original Message----

From:

Oprendek, Anthony

Sent:

Thursday, January 08, 2009 9:33 AM

To:

Clemens, David Subject: Request for Results

Dave, per our phone con...can you please relay the ethane results for 4530-099? Thanks for your help. Tony

Ansell, Mark

From:

Oprendek, Anthony

Sent:

Wednesday, January 21, 2009 3:03 PM

To:

Ansell, Mark Addresses

Subject:

Mark - here are all addressees listed on plats as within 1000' for wells we discussed. Need more files pulled or anything



Carter ddresses.doc (25 KE

else...lemme know. Tony

Addresses on plats showing water supply within 1000'

From Gesford 2 (20033) Ex. 6 - Personal Privacy From Baker 1 Plat (20026) Ex. 6 - Personal Privacy From Hubbard 1 (20039) Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

From Ely 6H (20041)

Ex. 6 - Personal Privacy

From Ely 5H (20054)

Ex. 6 - Personal Privacy

From Ely 2 (20015)

None listed within 1000

From Gesford 3 (20019)

Ex. 6 - Personal Privacy

From Lewis 2(20030)

Ex. 6 - Personal Privacy

DIM0043197 DIM0043214

From Lewis 1 (20035)

None within 1000'

From Costello 2 (20043)

Ex. 6 - Personal Privacy

DIM0043197 DIM0043215

Ansell, Mark

From:

Baldassare, Alfred

Sent:

Thursday, January 22, 2009 9:07 AM

To:

Ansell, Mark

Subject:

Dimock Twp. stray gas

Hi Mark,

Heard from Craig yesterday afternoon. We discussed the case briefly. I told him I'd like to have the C2 in the samples analyzed for del. 13C/12C and the N2 isotope also analyzed. This will help us understand the origin of the shallow gas much better. Could you also please revise the spreadsheet to include the specific permit numbers, or just provide them and I will revise the sheets.

Thanks - Fred

Fred Baldassare, P.G.
Geologist
Department of Environmental Protection
Director's Office
Emergency Response
400 Waterfront Drive
Pittsburgh, PA 15222
412-442-4145 (o)
412-225-0943 (m)

Ansell, Mark

From:

Kucsma, Paul

Sent:

Thursday, January 22, 2009 8:23 AM

To:

Lobins, Craig; Oprendek, Anthony; Ansell, Mark

Subject:

FW: Carter Road

----Original Message----

From: Welsh, Douglas

Sent: Wednesday, January 21, 2009 4:29 PM

To: Kucsma, Paul Subject: Carter Road

7" pressures

Greenwood 1 85# Hubbard 1 200# Baker 1 520# Gesford 2 590

Ely 1 natural,1 feeding the pipeline. Cellar full of water. Ely 2 0# Ely 4H 1200# Ely 6H 400# Heitsman 1 0# Costello 1 350# Costello 2 0# Lewis 1 0# Lewis 2 ounces Teel 5 200# Teel 7 80# Teel 1 790# Rozanski 1 not finished 140# Ely 6H 400# Brooks 0# Teel 6 110#

29

From:

Lobins, Craig

Sent:

Friday, January 23, 2009 3:34 PM

To:

Burch, Kelly: Sherman, Michael D

Cc:

Kucsma, Paul; Rozakis, James; Ansell, Mark; Gleeson, Robert; Braymer, Michael; Karlinsey,

Herbert; O'Donnell, Michael; Oprendek, Anthony; Welsh, Douglas

Subject:

Cabot update

As of this afternoon Cabot has only agreed to vent the backside of the well. They will start venting this afternoon and have committed until Monday afternoon. This may be enough time to observe changes. They still haven't agreed to vent Ely 4. We'll see what happens over the weekend and decide on Monday our next step. Cabot has also agreed or is doing the following:

They will be monitoring gas in the basement, foundation and water wells at Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

- They will continue drilling out to replug the Gesford 3 original well. (This is the well they believe is causing the problem.) They're hoping if all goes well that this could be completed by the middle of next week.
- They have also open the annular space to atmosphere on 2 other wells: Costello 1 and Gesford
- Vented and repaired Fix Personal Privacy; water well/well pit
- Temporary whole house alternate systems installed on water tanks plumbed into house system.

Ex. 6 - Personal Privacy

Provided department with well records and pressures.

Herb and Mike will be in Dimock Monday collecting more samples and inspecting wells.



The following is an update on the stray gas investigation in Dimock Twp.

- Baker 1 closest well to Exceptional Privacy Annulus (4 1/2" 7") vented to atmosphere on 1/23 through 1/27. Cabot closed the annulus yesterday afternoon. Stated they only agreed to do this until Monday afternoon but went an extra day. Field monitoring data of the blow down test at residents water wells is inconclusive. Cabot is planning on squeezing cement between the 4 1/2 and 7" next week. This will seal off the open interval of 1500 ft to 5400 ft. Cabot is planning on perforating the zone(s) that is making gas and then put this into production.
- Baker 1 After a lengthy discussion with us they have agreed to keep this well open until
 they rework the well next week. Late this morning Cabot re-open the annulus to
 atmosphere.
- Ely 4 this is the well with 1200 psi on the annulus. Cabot is plumbing a separate production unit to the backside of this well to relieve the pressure. This will reduce the annular pressure from 1200 psi to 450 psi. Work will be completed within 24 hrs. The 4 1/2" production tubing will remain in production.
- Gesford 3 This is the well they lost the drill bit in. Total depth of this well is 888 ft. The drill bit is stuck at 442 595 ft (total length of the drill bit is 153ft). A cement plug was set from 360 ft to ground surface. Cabot believes this is the source of the gas migration. So they are redrilling the hole to TD and then set a cement plug from TD to surface. Currently at 300 ft. The rig is down, mechanical problem. While the rig is down they are performing a deviation survey to verify that they are still in the original borehole. They lost cement show in their cuttings. Once the rig is repaired they will proceed to TD.
- Gesford 3S 30 ft from Gesford 3. This is the new location after they abandoned Gesford 3. Gesford 3 had gas shows at the surface on the outside of the 20" and between the 13 3/8 and 20". Annulus vented to atmosphere
- Costello 1 still venting annulus to atmosphere.
- No gas detected in the basements or around the homes which were provided alternate water source.
- Ex.6-Personal Privacy thawing water pipes and reconnecting water supply. Ex.6-Personal Privacy water line was Troze prior to the January 1 incident.

DIM0043197 DIM0043219

Oprendek, Anthony

From: Oprendek, Anthony

Sent: Friday, January 23, 2009 8:23 AM

To: Kucsma, Paul

Subject: RE: Follow up to Jan 20 phone call

My minor comments: no dates i.e. at this point we vent. Need to advise and make arrangements with DEP prior to venting any well so we can be available.

----Original Message-----From: Kucsma, Paul

Sent: Friday, January 23, 2009 7:00 AM **To:** Welsh, Douglas; Oprendek, Anthony **Subject:** FW: Follow up to Jan 20 phone call

----Original Message----

From: Tom Liberatore [mailto:Tom.Liberatore@cabotog.com]

Sent: Thursday, January 22, 2009 5:02 PM

To: Lobins, Craig; Kucsma, Paul

Cc: Komoroski, Kenneth

Subject: Follow up to Jan 20 phone call

Craig,

As follow up to our discussionon Jan 20, Cabot is submitting a plan regarding efforts to identify the source of methane in the water at various points in Susquehanna County. Outlined below are steps Cabot is going forward with. Also attached are some of the requested data to include pressure summary and water well test data. I will forward an e-mail with well records attached. Cabot currently has a drilling rig on the Gesford 3 well. Cabot has vented a few wells as shown on the attached pressure summary. Finally, Cabot has had a water well specialist on the Exceller and Sautner wells today. We will provide updgates as we get them. Please call Ken or myself with questions or for discussion.

Methane and/or natural gas have been detected in residential water wells in Dimock Township, Susquehanna County, Pennsylvania. The water wells are located in the area where natural gas wells have been drilled by Cabot Oil & Gas Corporation ("Cabot"). Cabot has been in frequent communication with the Department of Environmental Protection ("DEP") and local fire and safety officials since the recent discovery of the methane/natural gas in residential water wells.

Cabot continues to work diligently to cooperate with DEP and local fire and safety officials to assess the public health, safety and environmental concerns associated with natural gas present in water supplies. Specifically, Cabot is:

•	Temporarily supplying alternate water sources to the residences	of
Ex. 6	- Personal Privacy	<u> </u>

• Drilling out the original cement plug and removing piping from the original Gesford #3 well drilling location and plans to re-plug this original drilling location from total depth to grade;

- Monitoring gas release levels, if any, from the Gesford #3S well;
- Evaluating if there is gas release from the annular space of interior casing string of Gesford #3S well;
- Investigating the seal integrity between the 4" and 7" casing in the Baker 1 well;
- Paying to have a water well professional evaluate the water supply systems for the Ex. 6 Personal Privacy residences;
- Gathering well head and annular pressures from all wells and Cabot has invited DEP to participate in this information gathering; and
- Reviewing the pressures and logs on any well with annular pressure.

Next, Cabot will:

- Review the pressures and logs on any well with annular pressure and devise a plan to either blow down or pump fluid to kill any non-productive gas zones on a well by well basis;
- Submit well records to DEP; and
- Submit water testing data. To DEP
- Suggest that DEP put a public notice out that homeowners should vent make sure all water well systems are vented as standard safety practice.

In addition to the action items listed above, Cabot has retained SE Technologies to develop a groundwater evaluation program focusing on the possible sources and pathways of methane in the regional water supply. A professional geologist from SE Technologies visited the Dimock Township well locations earlier this week and met with residents to obtain firsthand information on water well depth, casing depth and other relevant information. Cabot has asked SE Technologies to prepare a proposal for immediate review of possible sources of methane/natural gas in the regional water supply.

Kucsma, Paul

From: Welsh, Douglas

Sent: Friday, January 23, 2009 9:14 AM

To: Kucsma, Paul Subject: RE: Gas Sample

153679 is gas from the Baker 1, from the 4 1/2" casing.

153680 is gas from the Baker 1, from the 2" pipeline at the production unit.

153681 is gas from the Baker 1, from the 7" casing.

----Original Message-----From: Kucsma, Paul

Sent: Friday, January 23, 2009 8:37 AM **To:** Welsh, Douglas; Ansell, Mark

Subject: FW: Gas Sample

Can one of you let me know and I'll answer.

----Original Message----

From: Tom Liberatore [mailto:Tom.Liberatore@cabotog.com]

Sent: Friday, January 23, 2009 8:30 AM

To: Lobins, Craig; Kucsma, Paul

Subject: Gas Sample

Craig,

Isotech lab sample 153679 says it is from the annulus or something different.

Also, lab sample 153680 is labeled "Pipeline". Can you tell me where on teh pipeline this sample was taken? Thanks. TSL

From:

Burch, Kelly

Sent:

Wednesday, January 28, 2009 3:34 PM

To:

Carmon, Mark

Cc:

Bedrin, Michael; Lobins, Craig

Subject: FW: Dimock Update

I'll give you a call and attempt to distill this information.

-----Original Message-----From: Lobins, Craig

Sent: Wednesday, January 28, 2009 3:32 PM

To: Burch, Kelly; Bedrin, Michael; Yowell, Robert; Sherman, Michael D; Weaver, Neil; Sexton, Barbara (DEP)

Cc: Kucsma, Paul

Subject: Dimock Update

The following is an update on the stray gas investigation in Dimock Twp.

- Baker 1 closest well to Existance Annulus (4 1/2" 7") vented to atmosphere on 1/23 through 1/27. Cabot closed the annulus yesterday afternoon but went an extra day. Field monitoring data of the blow down test at residents water wells is inconclusive. Cabot is planning on squeezing cement between the 4 1/2 and 7" next week. This will seal off the open interval of 1500 ft to 5400 ft. Cabot is planning on perforating the zone(s) that is making gas and then put this into production.
- Baker 1 After a lengthy discussion with us they have agreed to keep this well open until they rework the well next week.
 Late this morning Cabot re-open the annulus to atmosphere.
- Ely 4 this is the well with 1200 psi on the annulus. Cabot is plumbing a separate production unit to the backside of this well to relieve the pressure. This will reduce the annular pressure from 1200 psi to 450 psi. Work will be completed within 24 hrs. The 4 1/2" production tubing will remain in production.
- Gesford 3 This is the well they lost the drill bit in. Total depth of this well is 888 ft. The drill bit is stuck at 442 595 ft (total length of the drill bit is 153ft). A cement plug was set from 360 ft to ground surface. Cabot believes this is the source of the gas migration. So they are redrilling the hole to TD and then set a cement plug from TD to surface. Currently at 300 ft. The rig is down, mechanical problem. While the rig is down they are performing a deviation survey to verify that they are still in the original borehole. They lost cement show in their cuttings. Once the rig is repaired they will proceed to TD.
- Gesford 3S 30 ft from Gesford 3. This is the new location after they abandoned Gesford 3. Gesford 3 had gas shows at the surface on the outside of the 20" and between the 13 3/8 and 20". Annulus vented to atmosphere
- Costello 1 still venting annulus to atmosphere.
- No gas detected in the basements or around the homes which were provided alternate water source.
- Ex.6-Personal Privacy thawing water pipes and reconnecting water supply. Ex.6-Personal Privacy is water line was froze prior to the January 1 incident.

From:

Burch, Kelly

Sent:

Wednesday, January 28, 2009 8:48 AM

To:

Bedrin, Michael

Cc:

Yowell, Robert; Lobins, Craig; Sherman, Michael D; Weaver, Neil; Sexton, Barbara (DEP)

Subject: RE: Dimock

Mike:

We have made an additional request of Cabot to vent the backside of the Ely #4 well (in addition to the Example). This request was made in a telephone conversation with Tom Libatore of Cabot late Tuesday afternoon. We have a 9:00 a.m. call this morning scheduled with Cabot to determine their ability/willingness to comply. (We may be requiring a total three wells be vented to atmosphere to reduce pressures.) Short of voluntary compliance, I have had discussions with Mike and Barb about taking additional enforcement actions if necessary in order to stabilize the situation until the source(s) of the problem can be identified and corrected.

I will keep you posted.

Kelly

----Original Message-----

From: Bedrin, Michael

Sent: Wednesday, January 28, 2009 8:09 AM

To: Burch, Kelly; Lobins, Craig

Cc: Yowell, Robert Subject: FW: Dimock

Kelly & Craig-- Can you please keep Mark updated on the status as the press are following this very closely.

Thanks.

----Original Message-----

From: Carmon, Mark

Sent: Wednesday, January 28, 2009 8:02 AM

To: Bedrin, Michael; Weaver, Neil

Subject: Dimock

Good morning.

I anticipate reporters checking back in today or tomorrow about the status of our investigation. Mike, would you be able to check with Kelly out in Meadville? Neil, once we get that information, we will need some advice on how to describe where we are and how we intend to proceed.

Thanks.

Ansell, Mark

Lobins, Craig

Sent:

Thursday, January 29, 2009 9:38 AM

To: Subject: Oprendek, Anthony; Welsh, Douglas; O'Donnell, Michael; Karlinsey, Herbert; Ansell, Mark

FW: Dimock Update

Info I sent to Kelly

The following is an update on the stray gas investigation in Dimock Twp.

- Baker 1 closest well to Annulus (4 1/2" 7") vented to atmosphere on 1/23 through 1/27. Cabot closed the annulus yesterday afternoon. Stated they only agreed to do this until Monday afternoon but went an extra day. Field monitoring data of the blow down test at residents water wells is inconclusive. Cabot is planning on squeezing cement between the 4 1/2 and 7" next week. This will seal off the open interval of 1500 ft to 5400 ft. Cabot is planning on perforating the zone(s) that is making gas and then put this into production.
- Baker 1 After a lengthy discussion with us they have agreed to keep this well open until they rework the well next week. Late this morning Cabot re-open the annulus to atmosphere.
- Ely 4 this is the well with 1200 psi on the annulus. Cabot is plumbing a separate production unit to the backside of
 this well to relieve the pressure. This will reduce the annular pressure from 1200 psi to 450 psi. Work will be
 completed within 24 hrs. The 4 1/2" production tubing will remain in production.
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From:

Lobins, Craig

Sent:

Wednesday, February 04, 2009 2:37 PM

To:

Welsh, Douglas; Karlinsey, Herbert; Oprendek, Anthony; O'Donnell, Michael; Ansell, Mark;

Kucsma, Paul

Subject:

Cabot, Dimock Twp

2/4/09 per Tom Liberatore

still venting. Moving on location tomorrow to rework. Job should take 3-5 days

- Gesford 3 not on existing hole determined by deviation survey and magnetics. Will plug back and try again. The well is making gas. Volume unknown.
- Ely 4 producing back side. Line pressure at 450#. Preliminary volumes are high. May put a compressor on to further reduce pressure.
- Vents also installed on Sautner, Maye, Ely
- Vent stacks have sampling holes approximately 5 ft off the ground

Ex. 6 - Personal Privacy s have water again

Ex. 6 - Personal Privacy Wes or Randy will be resampling

Will contact Mike to schedule split sample

No changes observed in monitoring data

Craig Lobins, P.G. | Regional Manager Department of Environmental Protection 230 Chestnut Street | Meadville, PA 16335

Phone: 814.332.6855 | Fax: 814.332.6120

www.dep.state.pa.us

Ansell, Mark

From:

Welsh, Douglas

Sent:

Monday, February 09, 2009 11:38 AM

To: Subject: Lobins, Craig; Kucsma, Paul; Gleeson, Robert; Oprendek, Anthony, Ansell, Mark

Dimock Township morning report

A service rig is set up on the Baker 1 but no one is on site. The well is still venting.

[Ex.6-Personal Privacy] well vent 20% LEL and bubbling can be heard. Costello 1 is venting. Ely 4 7"

500 psi, tubing 520 psi. Herb just got there and hasn't checked everything.

Douglas Welsh | Oil & Gas Inspector Supervisor Department of Environmental Protection 230 Chestnut Street | Meadville, PA 16335 Phone: 814-332-6854 | Fax: 814-332-6120 www.depweb.state.pa.us

From:

Welsh, Douglas

Sent:

Friday, February 06, 2009 2:58 PM

To: Subject: Lobins, Craig; Kucsma, Paul; Oprendek, Anthony; Ansell, Mark

Dimock Township, Susquehanna Township

Cabot told Herb that they were moving a rig over to the when they will get started working on the well.

Douglas Welsh | Oil & Gas Inspector Supervisor Department of Environmental Protection 230 Chestnut Street | Meadville, PA 16335 Phone: 814-332-6854 | Fax: 814-332-6120 www.depweb.state.pa.us

From:

Welsh, Douglas

Sent:

Tuesday, February 03, 2009 10:00 AM

To: Subject: Lobins, Craig; Kucsma, Paul; Gleeson, Robert; Oprendek, Anthony; Ansell, Mark

Dimock Morning Report

The teasurement is still venting. No rig on site. The service rig is still on the Costello 2. A gas sample was collected from the 7" as requested. Gesford 3A, 498' and tripping out of the hole. They think they missed the target or drilled out of the hole. A logging unit is scheduled to be there at 4PM to try to find out what happened. Ely 4 is not venting. Costello 1 is venting. Cabot is fishing on the Costello 2. Tripping out of the hole on the Ratzel to rig up the down hole assembly at 5920'. The Ely 5H is at a TD of 10,392'. Waiting on Cabot for pressures.

Douglas Welsh | Oil & Gas Inspector Supervisor Department of Environmental Protection 230 Chestnut Street | Meadville, PA 16335 Phone: 814-332-6854 | Fax: 814-332-6120 www.depweb.state.pa.us

From:

Welsh, Douglas

Sent:

Monday, February 09, 2009 11:38 AM

To: Subject:

Lobins, Craig; Kucsma, Paul; Gleeson, Robert; Oprendek, Anthony; Ansell, Mark

Dimock Township morning report

A service rig is set up on the Baker 1 but no one is on site. The well is still venting. Ex.6-Personal Privacy well vent 20% LEL and bubbling can be heard. Costello 1 is venting. Ely 4 7" 500 psi, tubing 520 psi. Herb just got there and hasn't checked everything.

Douglas Welsh | Oil & Gas Inspector Supervisor Department of Environmental Protection 230 Chestnut Street | Meadville, PA 16335 Phone: 814-332-6854 | Fax: 814-332-6120 www.depweb.state.pa.us

From:

Welsh, Douglas

Sent:

Tuesday, February 10, 2009 10:49 AM

To:

Lobins, Craig; Kucsma, Paul; Gleeson, Robert; Oprendek, Anthony; Ansell, Mark

Subject: Dimock Township

Herb called that the cement contractor is on site at the getting ready to squeeze cement behind the 4 1/2". He will call back with results.

Douglas Welsh | Oil and Gas Inspector Supervisor Department of Environmental Protection 230 Chestnut Street | Meadville, PA 16335

Phone: 814-332-6854 | 814-332-6120

www.state.pa.us

Ansell, Mark

From:

Kucsma, Paul

Sent:

Thursday, January 29, 2009 10:28 AM

To:

Oprendek, Anthony; Welsh, Douglas; Ansell, Mark

Subject:

FW: Stray gas incident - Dimock Twp., Susquehanna County

Just an FYI so the little people know what is going on.

----Original Message-----

From: Burch, Kelly

Sent: Thursday, January 29, 2009 9:26 AM

To: Lobins, Craig; Kucsma, Paul

Subject: FW: Stray gas incident - Dimock Twp., Susquehanna County

Please make sure your field staff is kept informed of all parts of the investigation. As stated yesterday, I'd like to see Mike O'Donnell accompany Cabot into some of the homes in the course of their monitoring efforts.

Thanks, Kelly

----Original Message-----

From:

Burch, Kelly

Sent:

Thursday, January 29, 2009 9:22 AM

To:

Baldassare, Alfred

Cc:

Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark; Bedrin, Michael; Sexton, Barbara (DEP);

Bowman, Kenneth

Subject:

RE: Stray gas incident - Dimock Twp., Susquehanna County

Fred:

Thanks for the expert analysis and the quick turnaround. This is a complex investigation with so many gas wells in such close proximity to the affected water supplies. Establishing the various lines of evidence - one at a time - is key to the bringing the investigation to closure and identifying and eliminating the source or sources of the problem.

You indicate that further analysis may indicate mixing between the annular gas (upper) and the deeper production gas (Marcellus). We will continue to monitor the pressure changes on the production casing when the wells are being produced from the backside to determine if there is any communication between the isolated producing formations.

I will forward to you the list of activities being conducted in attempt to stabilize the situation (including cementing off the upper production zone of the well) and will keep you apprised of further developments.

Again, I appreciate your work and the usefulness and credibility it lends in our investigation to resolve this matter.

Thanks, Kelly

----Original Message----From: Baldassare, Alfred

Sent: Thursday, January 29, 2009 6:55 AM

To: Burch, Kelly; Bowman, Kenneth

Cc: Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark; Bedrin, Michael; Sexton,

Barbara (DEP)

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

Based on the existing geochemical data set, we can conclude that the origin of the stray gases detected in the existing geochemical data set, we can conclude that the origin of the stray gases detected in the existing gas and Sautner water wells (nine samples analyzed thus far: two = stray gas, seven = potential sources) is thermogenic in origin, consistent with natural gas from Devonian production. The gas found in these water wells is not consistent with

microbial gas that occurs in some shallow aquifer systems.

Results for the stable carbon & hydrogen isotope analyses reveal the gases from the gas wells can be further categorized as: 1) natural gas from formations of middle/upper Devonian origin. 2) Marcellus gas. The stray gas in the water wells is consistent with the gas from the formations above the Marcellus. Other lines of evidence will be necessary to identify which specific gas well(s) have contaminated the groundwater system. Additionally, we have requested the lab to also analyze for the stable nitrogen isotopes and the stable carbon isotopes for C2. These analyses will be available late today or early tomorrow and should help to further refine this interpretation. The data will not change the interpretation, but may reveal mixing between Upper Devonian production and Marcellus gas.

It should be noted that the source rock geochemistry (thermal alteration index, vitrinite reflectance, etc.) for this area reveal high paleo-temperature regimes throughout the section. Therefore, geochemical modeling predicts thermally mature gases throughout the Devonian system (what the data for this investigation reveals). This is significant in that, unlike natural gas reservoirs in western PA, we can expect to see only small differences in the isotope compositions of gases from different systems.

Fred Baldassare, P.G.
Geologist
Department of Environmental Protection
Director's Office
Emergency Response
400 Waterfront Drive
Pittsburgh, PA 15222
412-442-4145 (o)
412-225-0943 (m)

From: Burch, Kelly

Sent: Wednesday, January 28, 2009 4:53 PM To: Bowman, Kenneth; Baldassare, Alfred

Cc: Sherman, Michael D; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald; Carmon, Mark; Bedrin, Michael; Sexton,

Barbara (DEP)

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

The NERO is preparing remarks for the press regarding the status of the investigation and the steps being taken to stabilize the situation. We have referenced the Isotech samples in past news releases and the question has come up regarding the results of the analysis. Will they be available tomorrow if the question is raised? If they are, they will need to put in the proper context in terms of being one part of a multi-faceted investigation.

----Original Message-----From: Bowman, Kenneth

Sent: Monday, January 26, 2009 3:58 PM

To: Baldassare, Alfred

Cc: Sherman, Michael D; Burch, Kelly; Schwartz, Ronald; Lobins, Craig; Bialosky, Donald

Subject: RE: Stray gas incident - Dimock Twp., Susquehanna County

Thanks for the update.

----Original Message-----From: Baldassare, Alfred

Sent: Monday, January 26, 2009 3:55 PM

To: Bialosky, Donald

Cc: Bowman, Kenneth; Schwartz, Ronald

Subject: Stray gas incident - Dimock Twp., Susquehanna County

Don,

Just to make you aware of a request of me by Craig Lobins, O&G mgr. in NWRO to review the results for isotopic analyses, and provide additional recommendations for a stray gas incident that has impacted several water supplies in Dimock Twp., Susquehanna County. The incident has been reported on in the DEP daily news clips.